

REMARKS

I. Status of the Claims

Claims 22-31 are pending in the present application. .

Claims 1-14 and 16-21 have been canceled.

II. New Claims 22-31

New claims 22-31 have been added to more clearly point out what the applicant considers his invention. The newly added claims are fully supported by the specification and no new matter is introduced.

The following reactions/compounds and catalysts are exemplified in the specification:

Example 1: 4-(5,6-dihydro-11H-benzo[5,6]cyclohepta[1,2-b]pyridine-11-yliden)-1-piperidine carbonic acid-ethylester prepared from 5,6-dihydro-11H-benzo[5,6]-cyclohepta-[1,2-b]pyridine-11-one and 1-(ethoxycarbonyl)-4-piperidone in the presence of zinc and titanium tetrachloride.

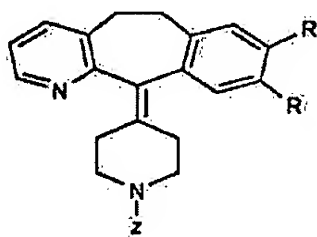
Example 2: 4-(8-chloro-5,6-dihydro-11H-benzo[5,6]cyclohepta[1,2-b]pyridine-11-yliden)-1-piperidine-carbonic acid-ethylester prepared by reacting 8-chloro-5,6-dihydro-11H-benzo[5,6]cyclohepta[1,2-b]pyridine-11-one with 1-(ethoxycarbonyl)-4-piperidone in the presence of zinc and titanium tetrachloride.

Example 3: 4-(8-fluoro-5,6-dihydro-1H-benzo[5,6]cyclohepta[1,2-b]pyridine-1-yliden)-1-piperidinecarboxylic acid-ethylester prepared from 8-fluoro-5,6-dihydro-1H-benzo[5,6]cyclohepta-[1,2-b]pyridine-1-one and 1-(ethoxycarbonyl)-4-piperidone.

Example 4: 4-(8-chloro-5,6-dihydro-1H-benzo[5,6]cyclohepta[1,2-b]pyridine-1-yliden)-1-acetyl-piperidin prepared in the presence of a zinc-copper-alloy and titanium chloride from 8-chloro-5,6-dihydro-1H-benzo[5,6]-cyclohepta-[1,2-b]pyridine-1-one and 1-acetyl-4-piperidone.

MARKED UP CLAIMS

22. (New) A process for producing 1,4-disubstituted piperidine compounds of formula (I)



(I)

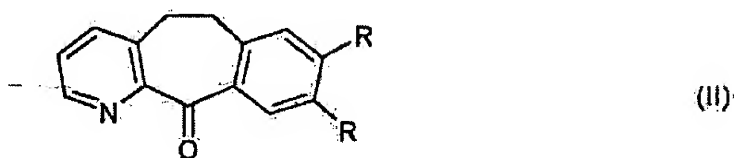
wherein

each R substituent is selected from the group consisting of hydrogen, fluorine, chlorine, and bromine;

a Z substituent is selected from a group consisting of $-C(O)R^1$ or $-C(O)OR^1$;

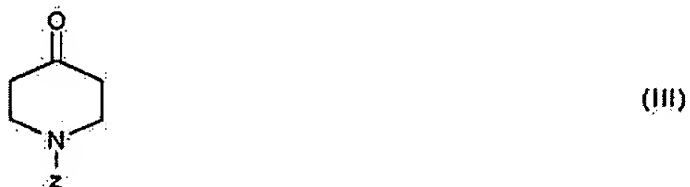
an R¹ substituent is selected from the group consisting of straight-chain (C₁-C₅)-alkyl or branched (C₁-C₅)-alkyl;

a compound of formula (II)



wherein said R substituents are selected from the group consisting of hydrogen, fluorine, chlorine, and bromine;

a compound of formula (III)



wherein said Z substituent is selected from a group consisting of -C(O)R¹ or -C(O)OR¹ and wherein said R¹ substituent is selected from the group consisting of straight-chain (C₁-C₅)-alkyl or branched (C₁-C₅)-alkyl;

wherein said compound of formula (II) and said compound of formula (III) are brought in contact and is reacted in a single process step by means of reductive dimerization

(i) in the presence of a finely dispersed metal compound selected from a group consisting of a chloride of titanium, a chloride of zirconium, a chloride of vanadium, a chloride of molybdenum, a chloride of tungsten and a chloride of uranium of a low-valent oxidation stage;

(ii) wherein the low-valent oxidation stage is produced in situ by means of a reducing agent; and

(iii) in the presence of an inert solvent, said reducing agent selected from the group consisting of zinc, lithium, sodium, potassium, magnesium, calcium, zinc alloys, lithium alloys, sodium alloys, potassium alloys, magnesium alloys, calcium alloys, calcium hydride alloys, sodium boron hydride alloys, and lithium aluminum hydride alloys; and, said inert solvent is selected from the group consisting of inert ethers, nitrogen-containing unsaturated hetero-aromatics or tertiary amines.

23. (New) The process according to claim 1, wherein at least one of said R substituents is selected from the group consisting of fluorine, chlorine or bromine.

24. (New) The process according to claim 1, wherein at least one said R substituent is selected from the group consisting of hydrogen, fluorine or chlorine, and wherein at least one said R substituent is selected from the group consisting of fluorine or chlorine.

25. (New) The process according to claim 1, wherein said compound of formula (I) wherein at least one of said R substituents is hydrogen, and wherein at least one said R substituents is selected from the group consisting of fluorine or chlorine.

26. (New) The process according to claim 25, wherein said R substituent on the benzene ring in the 8-position is chlorine.

27. (New) The process according to claim 25 wherein said Z substituent is -C(O)O-C₂H₅-

28. (New) The process according to claim 26 wherein said Z substituent is -C(O)O-C₂H₅-

29. (New) The process according to claim 22 wherein said finely dispersed metal compound is titanium tetrachloride and that a low-valent stage of this compound is made in situ by means of a reducing agent.

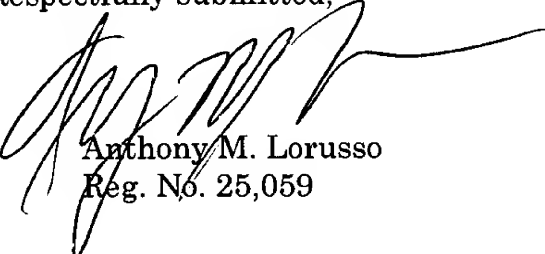
30. (New) The process according to claim 1 wherein said inert solvent is selected from the group consisting of 1,4-dioxane, 1,2-dimethoxyethane, tetrahydro- furane, diethylene glycol dimethylether, tert.-butyl-methyl- ether, pyridine, or triethyl amine.

31. (New) The process according to claim 1, wherein the compound produced is 4-(8-chloro-5,6-dihydro-11H-benzo-[5,6]-cyclohepta-[1,2-b]pyridine-11-ylidene)-1-piperidine carboxylic acid ethylester.

Conclusion

The applicant thus contends that newly added claims 22-31 are fully supported by the specification and are in condition for allowance. Accordingly, an early notification of allowance is courteously requested. Feel free to contact this office collect if you wish to discuss the application.

Respectfully submitted,



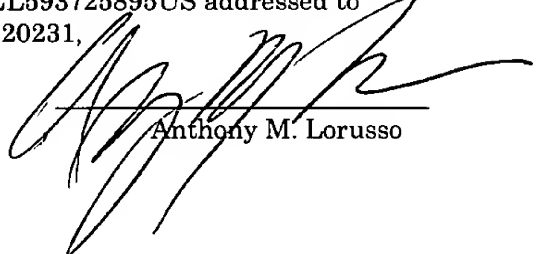
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